Plymouth University

Faculty of Arts and Humanities

School of Architecture, Design and Environment

Programme Specification

BSc (Hons) Architectural Engineering

Amended by Minor Change 16/11/2015
Definitive Document Approved 21st May 2015
Date of Implementation Sep 2016
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1. BSc (Hons) Architectural Engineering

<table>
<thead>
<tr>
<th>Final award title</th>
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</thead>
<tbody>
<tr>
<td>Level H</td>
</tr>
<tr>
<td>BSc (Hons) Architectural Engineering</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Intermediate award title(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level I</td>
</tr>
<tr>
<td>BSc Architectural Engineering (on satisfactory completion of 80 Stage 3 credits)</td>
</tr>
<tr>
<td>Diploma of Higher Education (on satisfactory completion of Stage 2)</td>
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</table>

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<tr>
<th>Intermediate award title(s)</th>
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</thead>
<tbody>
<tr>
<td>Level C</td>
</tr>
<tr>
<td>Certificate of Higher Education (on satisfactory completion of Stage 1)</td>
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<table>
<thead>
<tr>
<th>Awarding institution</th>
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<tbody>
<tr>
<td>University of Plymouth</td>
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<table>
<thead>
<tr>
<th>Teaching institution</th>
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<tbody>
<tr>
<td>University of Plymouth</td>
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<table>
<thead>
<tr>
<th>Accreditng body</th>
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<tbody>
<tr>
<td>Chartered Institute of Building (CIOB)</td>
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</table>

<table>
<thead>
<tr>
<th>Appropriate benchmark(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Built Environment; Building</td>
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</tbody>
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<table>
<thead>
<tr>
<th>UCAS code</th>
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<tbody>
<tr>
<td>K236</td>
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<table>
<thead>
<tr>
<th>JACS code</th>
</tr>
</thead>
<tbody>
<tr>
<td>K230 – Building Surveying</td>
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</table>

The analysis of a building's performance from design and construction, through to maintenance and repair.

This Programme Specification details how and where the skills and other outcomes are delivered in this programme. A mapping education of key skills is employed by the CIOB.

2. Distinctive Features of the Programme and the Student Experience

2.1 Architectural Engineering at Plymouth University

Architectural Engineers are key players in any multidisciplinary building project as they have the skills and knowledge to apply engineering principles and technology to building design, construction and management.

Changes to the UK building regulations and a move, globally, towards more energy efficient buildings require professionals with the skills and knowledge to contribute to and lead teams involved with the low carbon buildings of the future.

Our Architectural Engineering programme focuses on high performance and energy efficient buildings, as well as ensuring that those buildings have comfortable and usable indoor environments. Throughout the course, students develop an awareness of the fundamental interactions between building design, building construction, building management, the environment, and humans. Students learn about architectural design, including the
design of space, computational analysis of buildings, building information modelling, human aspects of the built environment, integration of renewable energy and building services design.

As architectural engineers, graduates of this course will combine the principles of architectural design and engineering to the analysis and evaluation of complex building designs, construction processes and building operational problems. For example, at the end of the course graduates will be able to:

- Apply building information modelling skills to manage effectively building projects in a multidisciplinary environment
- Predict the energy consumption of buildings and check compliance against energy efficiency targets and rating schemes
- Assess potential problems with building designs and services and modify these into well-functioning integrated solutions
- Design energy management and control solutions for buildings
- Select appropriate renewable energy technologies for buildings
- Manage a multidisciplinary design and construction team

2.2 Programme features

BSc (Hons) Architectural Engineering programme provides students with an inspiring, enriching and professional experience, preparing them for a successful career as graduates in the building industry.

The distinctive features of this programme focuses around the degree’s industrial context, optional placement period, multidisciplinary learning environment and its focus on high performance and energy efficient buildings, which will place learners at the forefront of the sector and able to embrace the trend towards stricter environmental and energy based legislation.

Applying engineering principles and technology to building design and construction, the programme enables learners to develop the knowledge and skills necessary for a successful career as an architectural engineer. The combination of lectures, field trips, site visits, tutorials with industry partners and an optional year-long paid industry placement, prepares learners for a range of routes in the built environment sector including design engineering, design management, design coordination, project management, architectural consultancy, building control, and planning.

This programme is designed around other building related programmes in the School of Architecture, Design and Environment, including BSc (Hons) Construction Management and the Environment, BSc (Hons) Building Surveying and the
Environment, BA (Hons) Architectural Technology and the Environment and BA (Hons) Architecture, offering a range of common modules with these other relevant disciplines, as well as specialist modules, projects and tailored dissertations modules.

The distinctive features include:

- **Professional Accreditation**: The course is fully accredited by the leading professional body recognised by design managers, architectural engineers and construction managers: Chartered Institute of Building (CIOB).

- **Lead the way in the industry**: our course focuses on high performance and energy efficient buildings, which will place you at the forefront of the sector and able to embrace the trend towards stricter environmental and energy based legislation.

- **Inspiring Teaching**: The programme is taught by staff with both an industry and research background. Teaching is also supported by industry professionals and an extensive programme of UK and international visiting speakers.

- **Industry Links**: The department sustains good links with many architects’ practices, engineering consultants, leading building contractors, and energy and regulatory authorities in the UK. Industry professionals play an active role in the programme, by participating in guest lectures, workshops and tutorials. These provide opportunities for work-placements to individual students and future employability opportunities.

- **Industry placement year**: Students of this programme have the opportunity to get experience in the construction industry and increase their future employability in the sector with a paid placement following their second year. The optional year-long placement is with organisations ranging from architects’ practices, engineering consultants, building contractors, and energy and regulatory authorities in the UK or abroad and allows the students to experience a professional environment. Students receive advice and guidance to arrange their own placement, and support from the academic staff to ensure that they are receiving a valuable learning opportunity.

- **Site visits**: Off campus, students also enrich their learning with industry experience both within the UK and abroad, through site visits and international field trips.

- **Research-informed learning**: The academic staff are also researchers, allowing the latest research findings to be delivered directly to the students.
The research covers a broad range of specialist areas, including: building performance analysis, energy efficient building design, construction management, thermography, construction economics, and sustainability values.

- **Multidisciplinary Learning Environment**: During the degree, students from this programme benefit from working in multidisciplinary groups with students from other programmes in the School of Architecture, Design and Environment, including BSc (Hons) Construction Management and the Environment, BSc (Hons) Building Surveying and the Environment, BA (Hons) Architectural Technology and the Environment and BA (Hons) Architecture, replicating a realistic working environment in construction projects.

- **Real assessments**: The course is designed to prepare students for their future career. The assessments reflect the varied world of work, a mixture of coursework, project work, site visit reports, examinations, and presentations. Students work on industry led group projects with real project briefs and clients, and they benefit from guidance from a panel of industrial advisers, which help them to develop the professional skills and networking necessary to successfully progress in the sector.

### 2.3 Enhancing employability in Architectural Engineering

There is currently a global shortage of qualified Architectural Engineers. Architectural engineering graduates are in great demand because of the ever increasing importance placed on the design, construction and operation of sustainable buildings.

Architectural engineers play a critical role in the multidisciplinary design teams of today’s built environment sector and therefore rank among the highest paid built environment professionals.

Graduates of architectural engineering gain employment in a wide range of built environment professions, including design managers, design engineers, design coordinators, building services engineers, consultants, project managers, building control officers and facility managers.

Our Architectural Engineering course works with an industrial advisory panel that actively supports the programme and provides our students with excellent links with future employers as well as opportunities to learn about the cutting edge of industry practice and thinking. Other activities that will enhance students’ employability within this course at Plymouth University include:
• **One year paid industry placement in an architectural practice, engineering consultancy or construction company in the UK or abroad**

Students have the opportunity to undertake an optional paid industry placement year with an architectural practice, engineering consultancy or construction company in the UK or abroad, which occurs between Stage 2 and Stage 3 of the programme. Students seeking to undertake a placement year receive advice and guidance to arrange their own placement, including the preparation for the selection process and the placement itself. The academic staff (on the role of placement tutor) provide students with support on their placement to ensure that they are receiving a valuable learning opportunity. The Employability Service organises pre-placement sessions timetabled in Stage 1 and Stage 2.

• **Careers events, where you will be able to meet and discuss careers opportunities with future employers**

Once a year the Faculty organises a Careers event, where several companies from the building industry take part and students have the opportunity to meet and discuss careers opportunities with future employers.

• **“Preparing for industry” talks by future employers**

Year 2 students are visited by several employers in both disciplines who would like to offer placements to Plymouth University building students. The Year 3 students in both courses also received visits from employers, who, after employing previous graduates from Plymouth University, are seeking to recruit more.

• **Workshops with industry professionals and guest lectures with industry specialists**

In every stage of the degree, students work on industry led group projects with real project briefs and clients, and they benefit from guidance from a panel of more than 20 industrial advisers, which help them to develop the professional skills and networking necessary to successfully progress in the sector.

• **Advice with the preparation of the CV and interviews**

The Employability Service, Placement Support, delivers pre-placement modules as part of the course, offering support on preparing CV and Covering Letter and managing the cycle for Placement/Work Based Learning activities, providing support and guidance to the students’ individual needs. In addition to the general support provided by the University, students have access to academic staff who, through their professional and academic experience, have insights in to the
particular nature of future career development within the built environment industries. This is further supplemented by links maintained with practices, and a register of potential job opportunities.

- *Invitation to talks and social events by professional organisations*

Students are invited to attend events organised by professional organisations such as Constructing Excellence South West (CESW) and Chartered Institution of Building Services Engineers South West (CIBSE). These events are always an excellent opportunity for networking with professionals as well to broaden the students' knowledge.

3. Relevant QAA Subject Benchmark Group(s)

QAA Benchmark statements for Architectural Technology
QAA Benchmark statements for Construction, property and Surveying

4. Programme Structure

The duration of the programme is either 6 semesters (3 years), or 8 semesters (4 years) if students undertake an optional industry placement year of 48 weeks, which occurs between Stage 2 and Stage 3 of the programme.

A Stage is equivalent to one year of study for a full time student. Each Stage consists of two semesters. Students are required to complete modules amounting 60 credits per semester, thus 120 credits in total. An outline programme structure, modules, and credits are presented in Table 1-4.

Students are expected to pass all modules in order to progress. No optional modules exist, with the exception of the industrial placement.

Pass requirement for each module: 40% (≥ 35% in coursework and examination elements). Compensation is permitted in accordance with University of Plymouth regulations, except where relevant accrediting body’s guidelines state otherwise.

*Stage 1 (Level 4) BSc (Hons) Architectural Engineering*

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
<th>Credit</th>
<th>Semester</th>
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<tbody>
<tr>
<td>BLDG401</td>
<td>Fundamentals of Construction</td>
<td>20</td>
<td>Semester 1</td>
</tr>
<tr>
<td>ATE401</td>
<td>Introduction to Architectural Technology and the Environment</td>
<td>20</td>
<td>Semester 1</td>
</tr>
<tr>
<td>BLDG402</td>
<td>Principles of Economics and Management</td>
<td>20</td>
<td>Semester 1</td>
</tr>
<tr>
<td>BLDG404PP</td>
<td>ICT for Architecture and Construction Projects</td>
<td>20</td>
<td>Semester 2</td>
</tr>
<tr>
<td>Module Code</td>
<td>Module Title</td>
<td>Credit</td>
<td>Semester</td>
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<td>-------------</td>
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<tr>
<td>BLDG403</td>
<td>Building Science and Services</td>
<td>20</td>
<td>Semester 2</td>
</tr>
<tr>
<td>BLDG405</td>
<td>Built Environment Project 1</td>
<td>20</td>
<td>Semester 2</td>
</tr>
<tr>
<td>FAPY100</td>
<td>Stage 1 Placement Preparation</td>
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</table>

**Stage 2 (Level 5) BSc (Hons) Architectural Engineering**

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
<th>Credit</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLDG501</td>
<td>Technology of Large and Innovative Buildings</td>
<td>20</td>
<td>Semester 1</td>
</tr>
<tr>
<td>BLDG502</td>
<td>Property development and refurbishment</td>
<td>20</td>
<td>Semester 1</td>
</tr>
<tr>
<td>BLDG507</td>
<td>Low Energy Building Design</td>
<td>20</td>
<td>Semester 1</td>
</tr>
<tr>
<td>BLDG505</td>
<td>Building Services Engineering</td>
<td>20</td>
<td>Semester 2</td>
</tr>
<tr>
<td>BLDG506</td>
<td>Contract Procedures</td>
<td>20</td>
<td>Semester 2</td>
</tr>
<tr>
<td>BLDG508</td>
<td>Built Environment Project 2</td>
<td>20</td>
<td>Semester 2</td>
</tr>
<tr>
<td>FAPY200</td>
<td>Stage 2 Placement Preparation</td>
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</table>

**Optional Industry Placement BSc (Hons) Architectural Engineering**

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>FAPY602</td>
<td>Industry Placement</td>
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</table>

**Stage 3 (Level 6) BSc (Hons) Architectural Engineering**

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
<th>Credit</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLDG601*</td>
<td>Research Methods in the Built Environment</td>
<td>20</td>
<td>Semester 1</td>
</tr>
<tr>
<td>BLDG602*</td>
<td>Dissertation Project</td>
<td>20</td>
<td>Semester 2</td>
</tr>
<tr>
<td>BLDG603</td>
<td>Sustainable and Safe Construction</td>
<td>20</td>
<td>Semester 1</td>
</tr>
<tr>
<td>BLDG604</td>
<td>Building and Property Law</td>
<td>20</td>
<td>Semester 1</td>
</tr>
<tr>
<td>BLDG609</td>
<td>Built Environment Project 3</td>
<td>20</td>
<td>Semester 2</td>
</tr>
<tr>
<td>BLDG608</td>
<td>Building Control and Commissioning</td>
<td>20</td>
<td>Semester 2</td>
</tr>
</tbody>
</table>

* The 40 credits Dissertation Project is undertaken in two parts, involving both BLDG601 and BLDG602 modules. It is necessary to pass BLDG601 to progress to BLDG602.
5. Programme Aims

- To provide students with the knowledge and skills to apply science and engineering principles to the design of buildings.
- To provide students with appropriate knowledge of the building performance, building construction and project process and management.
- To equip students with the skills required to work in multidisciplinary teams delivering buildings of the future.
- To equip students with information and communication technologies (ICT) skills, including modelling. This will include training in the use of leading software tools used widely in architecture and building engineering practices.
- To provide students with a range of transferable skills relevant for employment and further research.
- To give students the experience of undertaking a research project, including the ability to synthesise and evaluate data and formulate solutions.

6. Programme Intended Learning Outcomes

6.1 Knowledge and understanding

On successful completion, graduates should be able to demonstrate knowledge and understanding in the following areas:

- Context of construction industry, design and construction projects and the stakeholders involved
- The fundamental concepts, principles and theories of building design, building technologies and construction processes of both new and existing buildings
- Science and engineering principles of materials, building services, structural engineering and building components related to the building performance
- Project and design management principles and methods
- Computer-aided design, computer simulation and modelling, and building information modelling as integrated tools within the building design process
- Building regulations and directives
- The role of the architect engineer in building design and their professional and ethical responsibilities
- The research methods applicable to the architectural engineering
These subjects are progressively acquired throughout the programme by students developing and applying research, analytical and evaluative skills. Activities undertaken commence in induction (information retrieval / study skills) and develop through the undertaking of set and self-chosen research essays, reports, portfolios of research, a poster, the provision of papers culminating in the final year Dissertation. Achievement is measured through assessed coursework, examinations and presentations.

6.2 Cognitive and intellectual skills

On successful completion, graduates should be able to:

- Apply appropriate knowledge and skills to solve problems.
- Recognise and analyse criteria and specifications appropriate to specific problems, and plan strategies for their solution.
- Generate, collect, and interpret numerical and/or qualitative data
- Act independently, or in a group, and be able to adapt to dynamically changing situations that arise from the solution of multi-faceted and evolving design problems
- Identify their own learning needs, plan to meet these needs, and evaluate the learning outcomes
- Interpret and categorise building elements, components, systems and methods used for different building typologies and identify appropriate methodologies for dealing with complex problems
- Evaluate a range of possible built environment related issues and evidence to support conclusions and recommendations.

Cognitive and intellectual skills development commences at Stage 1 through coursework, activities, interactive workshops, tutorials and discussion groups. Development continues through all levels with increasing rigour.

6.3 Key and transferable skills

On successful completion, graduates should be able to:

- To communicate effectively, graphically, in writing and orally
- To manage resources and time effectively
- Undertake a critical appraisal of their work
• Undertake a critical appraisal of the work of their peers
• Work both autonomously and as part of a team
• Solve, discuss and debate architectural engineering related problems
• Demonstrate numeracy, mathematical skills, and computational skills
• Use Information Communication Technologies
• Learn effectively for the purpose of continuing professional development and in a wider context throughout their career

Analytical skills are developed through the analysis of data obtained through laboratory work, building simulation and in-class workshops. The achievement of these skills is demonstrated through the assessment programme involving reports, presentations and examinations.

Creativity on this programme is enhanced and developed through a range of design based activities such as the production of design building models, posters, the production of exhibitions of work and within in-class workshop activities such as sketching, and detailing.

Synthesis skills are achieved within project and 'taught' modules by students utilising a range of theories to develop and respond to hypotheses (e.g. Dissertation) and design problems (e.g. Project schemes).

Numeracy and statistical analysis is practised and developed in a range of other modules including science (laboratory analysis), building performance simulation, and the Dissertation.

The development of effective group and inter-personal skills is a feature of this programme achieved through formal and informal group working assignments and professional projects as well as in-class workshops. Students are taught elements of group work in a number of modules and have the opportunity to practice the skills in their major professional projects. Occasional peer review also provides an opportunity for reflection on team skills and dynamics.

6.4 Employment related skills

On successful completion, graduates should be able to demonstrate:
• Initiative and personal responsibility
• Effective communication and debating skills
• The ability to make decisions based on in-complete information
Self-appraisal is also considered a 'professional' skill by key professional bodies. Self-reflection is encouraged at all levels, where students can reflect both on their strengths and weaknesses. This commences in the Level 1 induction within a reflective study skills session and culminates in the final year professional project where self-reflection forms an element of the assessment criteria.

Students encounter basic sketching, CAD and BIM skills at Level 1 and continue to develop their competence throughout the other levels. Assessments at all levels include criteria relating to graphical skills in project and other modules.

6.5 Practical skills

On successful completion, graduates should be able to:

- Apply scientific and engineering principles to the design of buildings
- Working from an architect’s brief, produce an initial concept design for the layout and form of a building
- Analyse and select building technologies and design solutions to meet design briefs and building performance requirements
- Use advanced computer simulation tools effectively and appropriately for modelling the performance of buildings
- Take a leading role in design teams concerned with the technical aspects of the building design and the assessment of the design solutions
- Apply legal and regulatory requirements to achieve inclusive and sustainable buildings using building regulations, health and safety, quality assurance and control systems
- Develop procedures for the commissioning of buildings
- Use communication skills effectively to describe and discuss design options and the analysis of results from computer simulations and building performance data
- Perform research projects in the field of architectural engineering

Time management and planning skills are also achieved by students through the planning of their self-learning and coursework activities. An important demonstration of effective planning occurs within the professional project modules – where students have to plan their work sequences and group resources.

Problem solving skills are developed through the science modules using laboratory work, the discipline specific modules where building performance evaluation is
undertaken and professional projects, which often involve the solving of real life property problems for clients. In-class workshops also contribute to the development of this skill.

Oral communication skill development commences at Level 1 and progresses through all other levels. Students develop and practice this skill, usually in the form of providing individual and group presentations of work to their peers, although the project modules also include a presentation element to staff and/or industry professionals.

7. Admissions Criteria, including APCL, APEL and DAS arrangements

<table>
<thead>
<tr>
<th>Entry requirements</th>
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<tbody>
<tr>
<td><strong>Stage 1 entry:</strong></td>
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<tr>
<td>• 5 GCSE’s are normally required, grade C or above, to include Mathematics, English Language &amp; Science, together with one of the qualifications listed below:</td>
</tr>
<tr>
<td>• A Level/AS Level/Vocational A Level: 280 A-level points from any mix of subjects.</td>
</tr>
<tr>
<td>Alternatively, a Vocational Double Award in a related discipline with grade BB. National Diplomas and Certificates, Edexcel BTEC level N.</td>
</tr>
<tr>
<td><strong>Stage 2 entry and transfer:</strong></td>
</tr>
<tr>
<td>• Successful completion of an approved Foundation Degree will allow Stage Two Transfer.</td>
</tr>
<tr>
<td><strong>Stage 3 entry:</strong></td>
</tr>
<tr>
<td>• Through an appropriate admissions process such as an interview, or portfolio of evidence, possible entry onto the final year.</td>
</tr>
</tbody>
</table>

8. Progression criteria for Final and Intermediate Awards

The University of Plymouth’s “Assessment Regulations for Undergraduate Programmes of Study”, e.g. Foundation and Vocational Certificates and Diplomas will apply.
9. Exceptions to Regulations
N/A at the time of writing.

10. Transitional Arrangements
N/A at the time of writing.

11. Mapping

11.1 ILO’s and skills against Modules Mapping

See mapping of Benchmark LOs and modules. Find specific LOs and skills in module MRs.
<table>
<thead>
<tr>
<th></th>
<th>First Year</th>
<th>Second Year</th>
<th>Final Year</th>
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<tbody>
<tr>
<td><strong>Design</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1. an awareness of the</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>context and the political, economic, environmental, social and technological aspects that inform and influence the practice of Architectural Technology nationally and internationally</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>2. an ability to problem solve to realise the design into built form through the generation of detailed design solutions that respond to familiar and unfamiliar situations</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>3. an ability to successfully complete a sustainable and inclusive design project, systematic review or systematic case study, informed by current understandings in the discipline</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. an awareness of building elements, components, systems, and methods used for different building typologies</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>5. an awareness of current topics and practices which inform the discipline of Architectural Technology including new and emerging technologies</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. an awareness of project and design management, project procurement and process, construction and contract management</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Practice</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7. an ability to identify hazards and risks, safe systems of work and legal and relevant legislation and regulatory frameworks</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>8. an ability to work independently and as a member of a team identifying personal development needs and to plan to meet these needs through relevant and appropriate methods</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
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## 11.2 Assessment against Modules Mapping

### Stage 1 (Level 4) BSc (Hons) Architectural Engineering

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
<th>Credit</th>
<th>Semester</th>
<th>Status</th>
<th>Assessment</th>
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<tr>
<td>BLDG401</td>
<td>Fundamentals of Construction</td>
<td>20</td>
<td>Semester 1</td>
<td>Core</td>
<td>20% Test 80% Coursework</td>
</tr>
<tr>
<td>ATE401</td>
<td>Introduction to Architectural Technology and the Environment</td>
<td>20</td>
<td>Semester 1</td>
<td>Core</td>
<td>25% Test 75% Coursework</td>
</tr>
<tr>
<td>BLDG402</td>
<td>Principles of Economics and Management</td>
<td>20</td>
<td>Semester 1</td>
<td>Core</td>
<td>100% Coursework</td>
</tr>
<tr>
<td>BLDG404P</td>
<td>ICT for Architecture and Construction Projects</td>
<td>20</td>
<td>Semester 2</td>
<td>Core</td>
<td>100% Coursework</td>
</tr>
<tr>
<td>BLDG403</td>
<td>Building Science and Services</td>
<td>20</td>
<td>Semester 2</td>
<td>Core</td>
<td>50% Examination 50% Coursework</td>
</tr>
<tr>
<td>BLDG405</td>
<td>Built Environment Project 1</td>
<td>20</td>
<td>Semester 2</td>
<td>Core</td>
<td>100% Coursework</td>
</tr>
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### Stage 2 (Level 5) BSc (Hons) Architectural Engineering

<table>
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<th>Module Code</th>
<th>Module Title</th>
<th>Credit</th>
<th>Semester</th>
<th>Status</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLDG501</td>
<td>Technology of Large and Innovative Buildings</td>
<td>20</td>
<td>Semester 1</td>
<td>Core</td>
<td>50% Examination 50% Coursework</td>
</tr>
<tr>
<td>BLDG502</td>
<td>Property development and refurbishment</td>
<td>20</td>
<td>Semester 1</td>
<td>Core</td>
<td>50% Examination 50% Coursework</td>
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<tr>
<td>BLDG507</td>
<td>Low Energy Building Design</td>
<td>20</td>
<td>Semester 1</td>
<td>Core</td>
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</tr>
<tr>
<td>BLDG505</td>
<td>Building Services Engineering</td>
<td>20</td>
<td>Semester 2</td>
<td>Core</td>
<td>50% Examination 50% Coursework</td>
</tr>
<tr>
<td>BLDG506</td>
<td>Contract Procedures</td>
<td>20</td>
<td>Semester 2</td>
<td>Core</td>
<td>50% Examination 50% Coursework</td>
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<tr>
<td>BLDG508</td>
<td>Built Environment Project 2</td>
<td>20</td>
<td>Semester 2</td>
<td>Core</td>
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### Optional Industry Placement BSc (Hons) Architectural Engineering

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>FAPY602</td>
<td>Industry Placement</td>
<td>N/A</td>
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### Stage 3 (Level 6) BSc (Hons) Architectural Engineering

<table>
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<th>Module Code</th>
<th>Module Title</th>
<th>Credit</th>
<th>Semester</th>
<th>Status</th>
<th>Assessment</th>
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<tbody>
<tr>
<td>BLDG601*</td>
<td>Research Methods in the Built Environment</td>
<td>20</td>
<td>Semester 1</td>
<td>Core</td>
<td>100% Coursework</td>
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<tr>
<td>BLDG602*</td>
<td>Dissertation Project</td>
<td>20</td>
<td>Semester 2</td>
<td>Core</td>
<td>100% Coursework</td>
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<tr>
<td>BLDG603</td>
<td>Sustainable and Safe Construction</td>
<td>20</td>
<td>Semester 1</td>
<td>Core</td>
<td>50% Examination 50% Coursework</td>
</tr>
<tr>
<td>BLDG604</td>
<td>Building and Property Law</td>
<td>20</td>
<td>Semester 1</td>
<td>Core</td>
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<tr>
<td>BLDG605</td>
<td>Built Environment Project 3</td>
<td>20</td>
<td>Semester 2</td>
<td>Core</td>
<td>100% Coursework</td>
</tr>
<tr>
<td>BLDG608</td>
<td>Building Control and Commissioning</td>
<td>20</td>
<td>Semester 2</td>
<td>Core</td>
<td>50% Examination 50% Coursework</td>
</tr>
</tbody>
</table>

* The 40 credits Dissertation Project is undertaken in two parts, involving both BLDG601 and BLDG602 modules. It is necessary to pass BLDG601 to progress to BLDG602.
12. Appendix A – Reading List

**BLDG401  Fundamentals of Construction**
Construction Technology 1: House Construction by Mike Riley, Alison Cotgrave (ISBN: 9781137030177)

**BLDG402  Principles of Economics and Management**
The UK’s Strategy for Sustainable Development HMSO 1994
World Commission on Environment and development Our Common Future OUP 1987 330.9OUR

**BLDG403  Building Science and Services**
Recommended reading:
Database access: CIS, especially CIBSE material
No journals needed in year one.

BLDG501 Technology of Large and Innovative Buildings
Academic journals accessible via University library systems. E.g. Building and Environment; Energy; Automation in Construction; Energy and Buildings
Professional journals/magazines, e.g. Building, Construction Manager (CIOB)

BLDG502 Property Development and Refurbishment
Course books
Recommended reading
Coventry (Sections 2 and 5)
DCLG 2012 National Planning Policy Framework, Department for Communities and Local Government, London
http://www.communities.gov.uk/planningandbuilding/planningsystem/planningpolicy/planningpolicyframework/
DCMS (2010) Principles for the Selection of Listed Buildings, Department of Culture, Media and Sport, London

Property Management
Portals
Construction information Service (CIS)
RICS ISURV (requires urgent renewal)

BLDG507 Low Energy Building Design

**BLDG505 Building Services Engineering**
Recommended reading:
  [Note: there might be more recent versions, needs a check]

Database access: CIS, especially CIBSE material
Journals: Energy and Buildings, Building and Environment, Building Services Research and Technology
Software: to be decided - likely DesignBuilder and/or freeware

**BLDG506 Contract Procedures**
Construction Contracts
Construction Contracts: Law & Management, Murdoch & Hughes, Taylor & Francis
Construction Contract Law, John Adriaanse, Published by Palgrave
Cost Management
Building Design Cost Management, by Jagger, Ross, Smith & Love, Blackwell Publishing
Ferry & Brandon’s Cost Planning of Buildings by Richard Kirkham, Blackwell

**BLDG601 Research Methods in the Built Environment**
**BLDG602 Dissertation Project**
Journals: wide spread depending on dissertation topic - the likes of Building Research and Information, Energy Policy, Energy and Buildings, Building and Environment etc.

**BLDG603 Sustainable and Safe Construction**
Environmental Law
Wolf & Stanley on Environmental Law published by Routledge
McEldonwey & McEldowney Environmental Law published by Pearson Longman
Bell & McGillivray Environmental Law Publish by Oxford University Press

**BLDG604 Building and Property Law**
Cursley, Davys and Green, Land Law, Palgrave McMillan
Smith (R.J.) Introduction to Land Law, published by Pearson Longman

**BLDG608 Building Control and Commissioning**